which actuated Larrey and others to prefer the removal of the limb at the upper third, is still found to be a stumbling-block to conservative surgery, and to influence many of the surgeons of our public institutions to sacrifice large portions of healthy tissue.

I communicated, in the beginning of 1859, a short paper on this subject to the Surgical Society, in which I described "a case of amputation of the right forearm at the lower third, in which the tendons were drawn down and divided an inch above their termination in the flaps;" and I brought forward that case, in the hope that the great success which followed the plan adopted would induce others to make further trial of it, and to communicate the results of their experience of it to the profession. I performed this operation, for the first time, in October, 1858, and a short time after I had communicated it to the Surgical Society, Mr. Alford, surgeon to the Taunton and Somerset Hospital, operated in a similar way, and published the results in the *Medical Times and Gazette* of Feb. 4th, 1860. In both these cases a useful limb was preserved, and the stump healed in a very short space of time. The subject of my case has been my own servant for the past three years, and he can use his handless forearm with wonderful facility.

I have lately had further opportunity for testing the value of this mode of amputation, and I have now no hesitation in strongly recommending its general adoption. It is easily performed. Two flaps are made after the process of Vermale—the palmer by transfixion, and the dorsal by cutting in a semicircular course from the tegumentary surface, the flap being then dissected back. After the limb has been separated in the usual way and the arteries have been tied, the soft parts are drawn well back by an assistant, when the tendons will protrude. Each tendon is then grasped with the rasped blades of a spring-forceps, drawn out, and cut off on a level with the flap. The flaps, which should be two inches in length, of equal size, and with broad angles, are then brought together with sutures and adhesive straps, and a roller is carefully and evenly applied with the view to the obliteration of the cavities left by the retraction of the tendons. The bandage should be brought up as far as the edges of the flaps, and the face of the stump should not be covered by it, but merely dressed with wetted lint. The flaps will be found to adapt themselves accurately together; and to furnish all that is requisite for immediate union. The stump will be healed completely within three weeks, and the bones will be protected by a firm cellulo-integumentary cushion.

The advantages of this operation are very great, and I do hope that other surgeons will give it a trial, and that it will be found to be as successful in their hands as it has been in mine. I have been, I believe, the first to bring it to the notice of the profession, if I have not been the first to practice it; and in bringing it to the notice of such a learned body as the Surgical Society of Ireland, my object is to have its merits, or demerits, discussed by a competent tribunal. I have found it to succeed in my own practice, and I am confident of its success in other and more skilful hands than mine.—*Dublin Medical Press*, May 1st, 1861.

24. *Extirpation of the Shaft of the Tibia. Complete Recovery.*—The subject of this operation was a young man who had been affected with necrosis of the tibia for two years, and whose leg was, consequently, in such a disorganized condition that some of the most eminent Parisian surgeons, amongst whom it will suffice to mention M. Velpeau, had pronounced amputation at the thigh to be necessary. The performance of sub-periosteal extirpation of the substance of the tibia saved this patient, however, from the alternative of an operation which, according to French statistics, results in death in sixty per cent. of the cases in which it is resorted to, and has restored the limb to almost its original integrity of form, flexibility, and strength.

The portion of bone removed by M. Maisonneuve, under whose care the patient had been placed, was more than twelve inches long, an inch and a half in diameter at its upper end, and an inch at its lower extremity. Its surfaces were smooth and compact inferiorly, roughened and hollowed out superiorly.

The sequelæ of this operation were remarkable for their simplicity. The

traumatic fever was of a very moderate character; the suppuration, which had previously been abundant and fetid, was replaced by a free discharge of a healthy character; and after the fortieth day the patient was able to get up and walk about with the aid of crutches, in the same manner as if a simple fracture only had been under treatment. The bone was very completely reproduced, and when M. Maisonneuve reported upon this case at the meeting of the Academy of Sciences, on the 18th of March, the young man had become strong and vigorous, the limb, which was formerly the seat of disease, not differing in any way from the other.

The value of the preservation of the periosteum with a view to saving the limb by thus promoting the formation of new bone has recently engrossed much professional attention in France. The Academy of Sciences have offered a prize of £200 for the best essay upon this subject, to be sent in early in 1862, and the Emperor, having learnt the importance which would attach to a proper solution of this question, has expressed his intention to double the prize.—*Lond. Med. Rev.*, May, 1861.

25. *On the Growth of Long Bones and of Stumps.*—Dr. HUMPHREY read some interesting observations on these subjects before the Royal Medical and Chirurgical Society, April 12, 1861. In the first part of his paper he gave the results of some experiments with madder upon the bones of pigs with reference to the mode of growth of the bones in length. They were confirmatory of the observations by Hales, Duhamel, Hunter, and others, that the elongation is effected by addition at the ends of the shafts, the addition being effected by growth and ossification of the epiphysial strata of cartilage on the side next to the shaft. The experiments further showed that the growth at the two ends of the shaft is unequal; that it is usually most rapid at the larger end of the bone; and that it is always most rapid at the end where the epiphysial cartilage remains latest—that is to say, the growth proceeds most rapidly at the end where it is longest continued. The proper relation of the soft parts to the bone during the periods of growth is maintained by the interstitial growth of the periosteum, and by the continual sliding or shifting of that membrane upon the bone towards the end at which the growth is most rapid. This is attended with a certain traction upon the medullary and other vessels, and determines the direction of the canal for the medullary artery, which is always slanted towards that epiphysis which is last ossified to the shaft; in other words, towards that epiphysial line in which growth proceeds most quickly. The amount of growth in the respective epiphysial lines is very determined, and corresponds exactly on the two sides of the body, though that on the one side is not affected by the other; and it appers to regulate the amount of growth of the soft parts; for, if it be either arrested or accelerated, the growth of the soft parts is affected in a similar manner. In the second part of the paper the author showed the common impression, that a stump keeps pace with the rest of the body in its growth, to be erroneous. He did this by measurements taken from persons who had undergone amputation in childhood, and by experiments upon animals. The rate of growth varies. The stump rarely maintains its relation to the corresponding segment of the other limb; and it fails to do so, as might be expected, most markedly in those parts in which the growth of the bone takes place chiefly at the lower end. Thus, if amputation in the thigh be performed on a young child, one-third from the lower end, the stump, when full growth has been attained, will not be more than a third as long as the other thigh; its relative length will have thus been altered from two-thirds to one-third—that is, it will not have grown more than half as fast as the other thigh. The information derived from the measurements of stumps was thus shown to be quite corroborative of the observations made, in the first part of the paper, respecting the growth of the bones at their epiphysial lines. The instances in which the bone of a stump elongates so as to be troublesome and require a portion to be removed, are regarded by the author as quite exceptional, the phenomenon being probably due to some irritation, and being, therefore, of the same nature as the spicules and exostoses which are occasionally found upon stumps and on other parts of the skeleton.—*Med. Times and Gazette*, April 20th, 1861.